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ABSTRACT

Selected proceedings are presented from the Fifth Annual Conference on Undergraduate Teaching of Psychology. The proceedings includes: (1) "Multimodal Self-Management: A Holistic Approach to Teaching Self-Improvement," by Edward J. O'Keefe and Donna Berger; (2) "Undergraduate Research: Statistics to Senior Presentations," by Glena L. N. Schubarth; (3) "An Integrated Methods and Statistics Course for the Beginning Major," by George C. Fago; (4) "Relevance and Research: Using a Survey of Campus Environmental Attitudes in a Research Methods Course," by Bruce E. Rideout; (5) "Student Perceptions of Short, In-Class Experiences for Social Psychology," by Karen O'Quin; (6) "The Use of Student Presentations in Developmental and Social Psychology Classes," by Donna L. Reittinger and Kathleen Crowley-Long; (7) "Assessing the Value of Firsthand Knowledge in a Developmental Psychology Classes: Learning through Observation, a Comparison of Methods," by Linda L. Dunlap; (8) "Teaching Ethics," by Kathleen Harring, Laura Snodgrass, Dana S. Dunn, and Stacey B. Zaremba; (9) "Student Brainstorming: Undergraduate Teaching--Personal Dimension," by Albert H. Gardner; (10) "Introduction to SYMLOG and Its Uses in an Experiential Group Dynamics Course," by Thomas Rywick; (11) "Using Role-plays to Enhance Empathy for Patients in the Study of Abnormal Psychology," by Amy Herstein Gervasio; (12) "Designing and Teaching a Course on the Psychology of Women," by Kathleen Crowley-Long; (13) "Reading, Writing, and Research: Introductory Skills for the Empirical Psychologist," by Patricia McKeegan; (14) "Using Hypertext to Provide On-Line Help for Statistical Packages," by David S. Malcolm; and (15) "Conditioning Software," by Ann Gilchrist. (JMC)

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Teaching of Psychology: Ideas and Innovations

Proceedings of the Fifth Annual Conference

March 13-15, 1991

Judith R. Levine and Stanley C. Feist, Editors

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Introduction

The Fifth Annual Conference on Undergraduate Teaching of Psychology was held March 13-15, 1991 at the Neville Country Club in Ellenville NY. The conference was sponsored by the psychology department of the State University of New York College of Technology at Farmingdale with the assistance of the Center for Lifelong Learning at Farmingdale.

In addition to a keynote address by Douglas Bernstein, the conference participants had 23 presentations from which to choose, as well as an array of publishers' exhibits to visit. Fifteen of the presentations are included in these conference proceedings.

The success of this conference was due to the dedicated work of many people. We extend our sincere thanks to the following people for their efforts on behalf of the conference: Ms. MaryBeth Sclafani of the SUNY Farmingdale Center for Lifelong Learning for providing administrative support and overseeing the entire process; Ms. Barbara Sarringer of the Psychology Department at SUNY Farmingdale for providing invaluable secretarial assistance; Prof. David Griesé and Mr. Robert Loveler of the Psychology Department at SUNY Farmingdale for lending a much needed hand with the paper selection process; and Ms. Terry Finch of Houghton-Mifflin Co. for arranging for Douglas Bernstein to address us, and for providing a pre-dinner reception.

Judith R. Levine
Stanley C. Feist

CONFERENCE PROGRAM

THE 5th ANNUAL CONFERENCE ON UNDERGRADUATE

TEACHING of PSYCHOLOGY:

IDEAS & INNOVATIONS

PRESENTED BY

THE PSYCHOLOGY DEPARTMENT

of

SUNY COLLEGE OF TECHNOLOGY AT FARMINGDALE, NY

on

WEDNESDAY, MARCH 13, THURSDAY, MARCH 14,
and
FRIDAY, MARCH 15, 1991

in cooperation with the

SUNY FARMINGDALE DEPARTMENT OF CONTINUING EDUCATION

WEDNESDAY, MARCH 13, 1990

1:00 PM to 2:00 P.M. REGISTRATION
Publishers' Displays

2:00 PM to 3:20 PM SESSION 1

Room 1: Presider : Charles DuFour, Colby College, Orono, ME
Workshop: Multimodal Self-Management: A Holistic Approach to Teaching Self-Improvement.
Edward O'Keefe & Donna Berger, Marist College, NY.

Room 2: Presider: Kathleen Crowley-Long, College of St. Rose, NY
What Memory Research Tells Us About Teaching Psychology.
William R. Balch, Penn State University, PA.

Some Insights and their Implications for Teaching Derived from Experience in a Military Education Program.
Mortimer Brown, Saint Leo College, FL.

3:20 PM - 3:50 PM: COFFEE BREAK

3:55 PM - 5:15 PM SESSION 2

Room 1: Presider: Judith Levine, SUNY College of Technology,Farmingdale,NY
Workshop: Psyched to Write: Integrating Writing into Psychology Courses. Maribeth Palmer-King, Broome Community College, NY

Room 2: Presider: David Malcolm, Fordham University, NY
Undergraduate Research: Statistics to Senior Presentation.
Glena L.N. Schubarth, Eastern Nazarene College, MA

Intuitive Approaches to Research and Statistics for the Beginning Student: A Pilot Program. George C. Fago, Ursinus College, PA.

6:00--7:00 PM RECEPTION

7:00 PM DINNER

DOUGLAS BERNSTEIN, INVITED SPEAKER
WAS IT GOOD FOR YOU TOO? KEEPING TEACHING EXCITING FOR US AND FOR THEM.

Invited Speaker and the Reception courtesy of Houghton Mifflin Company

Ask about our Hospitality Room

THURSDAY, MARCH 14, 1991

9:30 AM - 11:00 AM SESSION 3

Room 1: Presider: Thomas Rywick, SUNY College at Fredonia, NY

Psychology and the "Real World": Toward a Methodology for Increasing Social Relevance. Kenneth D. Richardson, Ursinus College,PA.

Relevance and Research: Using a Survey of Campus Environmental Attitudes in a Research Methods Course.
Bruce E. Rideout, Ursinus College, PA.

Student Perceptions of Short, In-Class Experiences for Social Psychology. Karen O'Quin, SUNY College at Buffalo, NY.

Room 2: Presider: Albert H. Gardener, University of Maryland, MD.

The Use of Group Presentations in Developmental and Social Psychology Classes.
Donna Lis Reittinger & Kathleen Crowley-Long, College of St. Rose, NY.

Assessing the Value of Firsthand Knowledge in a Developmental Psychology Class. Linda L. Dunlap, Marist College, NY

11:00 AM - 11:20 AM COFFEE BREAK

11:25 AM - 12:45 AM : SESSION 4

Room 1 : Presider: Kathleen Harring, Muhlenberg College, PA

Panel Discussion: Teasching Ethics.
Kathleen Haring & Laura Snodgrass, Muhlenberg College, PA
Dana S. Dunn & Stacey B. Zaremba, Moravian College, PA

Room 2 : Presider: Mortimer Brown, St. Leo College, FL.

"Speaking Prose"? : Teaching Critical Thinking in Psychology.
Majorie Gelfond, County College of Morris, NJ.

Student Brainstorming: Ideas and Innovations in the Teaching of Psychology. Albert H. Gardener, University of Maryland, MD

1:00 PM - 2:00 PM LUNCH

2:10 PM - 3:30 PM SESSION 5

Room 1: Presider: Stanley Feist, SUNY College of Technology,Farmingdale,NY
Workshop: The Healing Wisdom of Hasidic Stories: A Contemporary Social Psychological Workshop on Story Telling.
Howard W. Polsky, Columbia University School of Social Work, NY.

Room 2: Presider: Gene Indenbaum, SUNY College of Technology, Farmingdale
Workshop: Active Learning: How to Make Critical Thinking a Reality in the Introductory Psychology Course.
Karen R. Huffman, Palomar College, CA.

3:30 PM - 3:50 PM: COFFEE BREAK

3:55 PM - 5:15 PM SESSION 6

Room 1: Presider: Howard W. Polsky,Columbia Univ.School of Social Work,NY.
Workshop: Introduction to Sumlog and its Uses in an Experiential Group Dynamics Course.
Thomas Rywick, SUNY College at Fredonia, NY.

Room 2: Presider: Linda Dunlap, Marist College, NY
Workshop: No Sage on the Stage, But a Guide on the Side.
How to Increase Student Thinking and Learning.
James Bell, Howard Community College, MD.

6:0--7:00 PM RECEPTION

7:00 PM DINNER

INVITED SPEAKER, WILLIAM BUSKIST
STUDENT INSIGHT: PSYCHOLOGY and ENVIRONMENT.

Invited Speaker courtesy of Harper Collins Publishers.

EVENING ACTIVITIES ON YOUR OWN ----- CHECK OUT OUR HOSPITALITY ROOM

FRIDAY, MARCH 16, 1991

9:30 AM - 10:50 AM SESSION 7

Room 1: Presider: Roger Hoffman,SUNY College of Technology,Farmingdale.

Using Role-plays to Enhance Empathy for Patients in the Study of Abnormal Psychology.
Amy Herstein-Gervasio, Hamilton College, NY.

Creating and Teaching a Psychology of Women Course.
Kathleen Crowley-Long, College of St. Rose, NY

Room 2: Presider: David Griesé,SUNY College of Technology,Farmingdale,NY

Workshop: Reading, Writing, and Research: Introductory Skills for the Empirical Psychologist.
Patricia McKeegan, SUNY College at Old Westbury, NY.

10:50 AM - 11:10 AM: COFFEE BREAK

11:15 AM - 12:35 PM SESSION 8

Room 1: Presider: Karen O'Quin, SUNY College at Buffalo, NY

Workshop: Using Hypertext to Provide On-Line Help for Statistical Packages. David S. Malcolm, Fordham University, NY.

Room 2: Presider: Robert Lovler, SUNY College of Technology, Farmingdale

Workshop: Conditioning: A Demonstration of Original Software.
Ann Gilchrist, Ulster County Community College, NY.

1:00 PM - 2:00 PM LUNCH Have a Safe Trip Home

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Conference Committee: Chairman: Stanley C. Feist, Ph.D.
Judith R. Levine, Ph.D., Professor David Griesé, Marybeth Sclafani.
Design of Registration Mailing: Robert Lovler

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MULTIMODAL SELF-MANAGEMENT: A HOLISTIC APPROACH TO TEACHING SELF-IMPROVEMENT

By: Dr. Edward J. O'Keefe
Professor of Psychology
Marist College
Poughkeepsie, N.Y.

Ms. Donna Berger
Exec. Assistant to the
Academic Vice President
Marist College
Poughkeepsie, N.Y.

A one-credit self-management course for high-risk students and the conceptual framework that serves to integrate the course topics was the focus of this workshop.

While Marist's student success course includes topics common to other freshman seminars, a comprehensive self-management model serves to integrate topics that are traditionally taught as if they were separate areas of human functioning. Thinking skills, motivation, study habits, time management, and assertiveness are the primary topics covered; goal-setting, values clarification, decision-making, communication, and self-esteem are also emphasized in the context of the primary topics.

The conceptual framework, which takes into account the intellectual, emotional, and behavioral characteristics of learning, is applied to each topic. By using the same methodology in addressing each topic area, Marist students learn that most situations they encounter, whether academic or personal, are experienced in three interrelated ways: intellectually, emotionally, and behaviorally. It is the objective of the course to teach students self-management skills that not only will help them to adapt and prosper during their freshman year, but to provide them with fundamental skills that will benefit them throughout their scholastic and professional careers.

The model serves to unify topics that are often approached in a disparate fashion. It also allows instructors to deal with fewer topics because by repeatedly applying the model to each topic area, it becomes clear that the individual topics are best understood when the elements common to all of them are understood. Students not only become proficient in using the model in specific topic areas such as self-motivation and study habits, but they learn to apply its principles in areas not formally covered as part of the course.

In summary, the workshop introduced a self-management model that can be adapted to most freshman success courses. References were provided and time reserved for reactions and questions. Participants also received a sampling of course materials and copies of the books used in the course were available for their perusal.

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O'Keefe, E. (1985). Ultimodal self-management: A holistic approach to teaching self-improvement. Humanistic Education and Development, 23, 176-182.

O'Keefe, E. and Berger, D. (1990). Self-Management for high-risk students: A student-focused program for student, faculty, and staff development. Journal of Staff, Program, & Organization Development, 8 (3), 175-180.

O'Keefe, E. and Berger, D. (1991). The ABCs of Self-Management. O'Keefe/Berger Publishers.

Undergraduate Research: Statistics to Senior Presentations

Glena L.N. Schubarth

Eastern Nazarene College

Undergraduate Research: Statistics to Senior Presentation

Undergraduate psychology students rarely enter their first or second year of college excited about pursuing research. Most students in fact, have a very limited understanding of the important role research plays in all areas of psychology. I have found this to be consistently true in the experiences I have had at ENC.

Eastern Nazarene College is a relatively young liberal arts college located 6 miles south of Boston, founded in 1968. For the past three years we have had between 650-780 full-time undergraduate students. Of the 25 majors available at ENC, psychology has been one of the top three in terms of number of declared majors.

One of the requirements for graduation of ENC students in the successful completion of comprehensives. Each department has the authority to determine what method of comprehensive examination is most applicable to its majors. In the 1970s it was determined by the psychology faculty that a comprehensive research project would be the best avenue to use in order to prepare undergraduate students for continuing on in psychology whether they choose graduate studies or a Bachelor's level position in the job market. By completing this project a student has the opportunity: to explore an area of personal interest in the field psychology, to demonstrate his/her understanding of one specific area of psychology, to utilize his/her skills in searching literature, locating appropriate literature, reading and comprehending the research articles and integrating the works of other research into his/her own writing, demonstrate his/her understanding of empirical design, statistical analysis and data

interpretation, write a complete research project and finally demonstrate his/her oral presentation skills.

The presentations occur in January of the student's senior year. The department hosts a weekend seminar. During the fall of his/her senior year, the student is enrolled in a course, PS451 Perspectives and Issues in Psychology, that provides a forum for completing the senior project. The professor of the course guides the students in topic selection, literature search and integration, theoretical or empirical design and presentation style. Students had the choice of completing a theoretical or empirical project. As this comprehensive project was incorporated into the curriculum, the majority of students, over the years, have opted for a theoretical paper, not really understanding the depth of integration and thought needed for this type of research. The majority of these paper were little more that topical term papers.

We began devising a plan to encourage more students to complete empirical projects for their senior comprehensives. This required more time than one semester. Therefore an informal program was initiated in 1988 where a three course sequence was utilized as a basis for working toward the project. A department manual was also developed to assist the student through the entire process. This sequence began in the students sophomore year within the course PS250 Statistics for Social Sciences. Each student was required to choose a topic for a data collection project. At the beginning of this course, the students were introduced to the vast number of research topics, the importance of research and methods for determining topics that were appropriate for empirical research. Once the topic was approved by the professor, the student was required to locate one article that was in some way related to the

topic. The focus was on data collection, analysis and interpretation. Each student was required to turn in an individual data collection project written in APA format.

In his/her junior year, the students in two of the three tracks were required to complete PS350 Experimental Psychology. Within this course, the details of APA format and experimental design are taught. Each student is involved in 4 in-class experiments. She/he is required to write up parts of the experiment in APA format. Different aspects of the experimental write-up focused upon for each of the four experiments. This allows the student to acquire experience writing an empirical paper in APA format and receive feedback on his/her writing style, understanding of experimental design and APA format. Each student is also required to complete an individual research project. This may be an extension of the data collection project completed in Statistics. Approximately 10% of the students choose to continue with his/her Statistics project. By the time the Experimental project is completed, each student has written and receive feedback on each part of an APA format style empirical paper. The feedback covers APA format as well as experimental design, data analysis and interpretation. The students are also required to submit a proposal for the Canterbury Research Forum. This Forum provides undergraduate students with an opportunity to be involved in a poster session and graduate students to present papers from their research.

Students have the option of taking an elective course S0451 Quantitative Data Analysis, which assists them in understanding the SAS and minitabs programs on the VAX system. During this course students learn to input data and analyze data from various types of experimental designs including t-tests, regression and ANOVAs. This

course was first offered in the Spring semester of 1989 with an enrollment of 5 students. There are currently 9 students from Business and Psychology enrolled in the course.

The third course occurs during the fall of the student's senior year. All psychology students are required to complete his/her senior comprehensive. Again s/he has the choice of expanding his/her Experimental Research project for the senior comprehensive. In the 1989-90 school year, less than 10% opted to expand his/her experimental project for the senior comprehensive. This meant that the majority of students were attempting to complete either an empirical or theoretical research project in 4 months while continuing as a full-time student.

We as psychology faculty had a number of concerns with our program. The pressure on students to complete a comprehensive project in a limited amount of time was resulting in projects that were not much above a sophomore level. As the number of graduates increased, the time demands upon the professor of the senior course have become overwhelming. Each student's senior comprehensive is read by the major professor a minimum of two times. Students are assigned a second reader in order to be able to receive more feedback but currently only approximately 25% of the students use their second reader. Students were not feeling confident enough to submit their research for presentation to meetings outside of ENC. Students continued to be unaware of the importance of networking in the field of psychology. There was minimal awareness of what was occurring in the field outside of the the ENC campus. Students could choose options for the psychology major which did not prepare them for their senior comprehensives.

In an attempt to address these concerns, we have recently revised our entire curriculum. We now offer a B.S. and two B.A. tracks in psychology plus a dual B.A. in psychology and sociology. All students are required to take the three courses that are seen as critical for preparation for their senior project, Statistics for Social Sciences, Experimental Psychology and History and Systems. Each student receives a letter from the department chair during his/her sophomore year that introduces or reminds him/her that the process for senior comprehensives needs to be started. This process is as follows:

Sophomore year:

*Student receives a letter reminding him/her of the process

*Student completes Statistics for Social Sciences

*Student completes data collection project

*Student begins to become acquainted with psychology faculty members and their interests

Junior Year:

*Student receives second letter stating first deadline

*Student chooses his/her research advisor by the end of the fall semester.

*Student completes Experimental Psychology project

*Student participates in Canterbury Research Forum by completing a poster session from Experimental project

*Student submits research idea in writing to research advisor

*Student's idea is finalized and signed-off by research advisor.

*Student begins literature review. The student can use papers written in Abnormal, Social, Personality or Experimental.

Senior Year

*Student receives letter explaining process

*Student enrolls in History and Systems

*Student continues working on research project with research advisor

*Student is encouraged to submit research to professional meeting outside ENC

*Student presents in January.

Prior to the implementation of the three-course sequence, no ENC student had ever submitted for presentation or publication. Of the twelve students presenting in January 1990, three presented empirical papers. One student received honors and later that year submitted his research for publication and had it accepted.

This January we had 17 seniors present their comprehensives. Of these 17, 7 were theoretical and 10 were empirical. Two received high honors, one theoretical, one empirical. Two students submitted their work for presentation at a conference outside ENC. One was accepted for presentation.

As students are experiencing a longer time of being exposed to psychological research, they are feeling less intimidated and more interested in it. As students are encouraged to attend professional conferences and appropriate psychological meetings, they are increasing their expectations of themselves and expressing more confidence in their abilities. As we continue to monitor the program

and encourage students to interact with the psychological community inside and outside the college, I believe that we will have graduates who enter graduate programs and the work force better prepared, more confident and more experienced in the field of psychology.

AN INTEGRATED METHODS AND STATISTICS COURSE FOR THE BEGINNING MAJOR

George C. Fago, Ph.D.

Ursinus College

Psychologists have long had an ambivalent relationship to statistics; we can't live without the field, but we sometimes find it difficult to live with it. The mathematics of advanced multivariate techniques is far beyond the expertise of the average researcher, and what these techniques constitute conceptually is similarly elusive. But the problem is particularly acute in undergraduate education. There is a concensus that the undergraduate major needs to know statistics, but that is the limit to agreement. When should the course be taken? At the beginning of the major before the methods course? Afterwards? Who should teach it? The department itself? The mathematics department? What should the course emphasize? How far should it go? The debate continues unabated as it has literally for decades.

Moreover, the debate is not an empty academic exercise. Anyone involved in undergraduate instruction knows that statistics is a real stumbling block for most undergraduates. Not a few have changed to other majors because of it, while the remainder struggle through it reluctantly with typically elusive benefits. Year after year I encounter students in my upper level laboratory courses whose grasp of statistics could most charitably be described as shaky. At best, they can compute some elementary statistical tests. When given a data set to analyze they are totally at sea. They are very unsure as to which statistics are appropriate and even more confused as to how to apply the tests to the data. Pragmatic considerations such as adjusting alpha levels for multiple tests (to say nothing of the concept of power), one vs. two-tailed tests of significance, non-parametric vs. parametric approaches, scales of measurement, etc., - these considerations are largely terra incognita for the typical undergraduate. To be sure, to develop and to sharpen analytical skills are also instructional goals for upper level laboratory courses as well. But it is disheartening to discover, as is so often the case, that you must start the process virtually at square one.

What is the origin of this apparently universal problem? In some cases students may simply not apply themselves, but a country-wide conspiracy among students seems unlikely. Similarly, universal ineptitude in teaching seems unlikely. Perhaps the fault is neither the students nor the instructors, but rather lies in the pedagogy itself. A gifted statistician and colleague once remarked off-handedly that he didn't worry overly much about the specific content of undergraduate statistics courses. He was convinced that it took about three statistics courses to produce a conceptual breakthrough into understanding. At the time that made sense to me intuitively, and descriptively I believe it is still reasonably accurate. He was convinced that successive re-exposure to the material was the causal factor behind the conceptual breakthrough. I am now increasingly convinced that in this he was mistaken. Repetition of course work always introduces a correlated variable, a general increase in experience with experimental data and analysis and a broader and deeper understanding of the context of statistical usage. And this, I submit, is at least as important as

repetition in developing understanding and facility with statistics. In fact, I argue that this is the causal factor.

B. A Piagetian Analysis

I would like to suggest a low level Piagetian analysis of the problem, with humble apologies in advance to the spirit of Piaget. It seems to me that 'statistics in psychology' constitutes a multi-dimensional entity. In actually doing statistics and, for that matter, teaching it we are confronted with the multi-dimensionality of mathematical statistics: what are they and what do they mean, considerations of experimental and research design, data sets - their production, reduction, transformation, and general management, the actual accomplishment of the statistical analysis itself, and finally interpretation of the results. Although 'statistics' bears on all these dimensions, they are none-the-less at least somewhat independent if not 'orthogonal.' My thesis is that the problem for undergraduate instruction is the problem of where to start. The problem on reflection seems intractable; no matter where you start, inevitably you find yourself <u>in medias res</u> with respect to the other dimensions. As a result, we not uncommonly duck the issue and require students to take a course in statistics, preferably from someone else, with statistics taught as an entity unto itself. Then we are surprised and distressed when these same students take our courses and work in our labs. 'How could they have learned so little?' is the common refrain.

From a Piagetian viewpoint the typical undergraduate who takes statistics for the first time has virtually no pre-existing cognitive structure within which to assimilate statistical concepts. The average student is profoundly unprepared cognitively for statistics. The indeterminacy inherent in statistics is itself without precedent in their conception of mathematics and there is little structure within which to assimilate it. Students also have little or no concept of a data set, or of the need for data reduction. They have had little or no experience designing and conducting research, much less with the problems inherent in evaluating the outcome of that research.

Students bring to the statistics course a conceptual model of science as received wisdom deriving from laboratory work which produces unambiguous and incontrovertible evidence. For example, the speed of a falling body at point b can be calculated with precision, <u>i.e.</u>, it can be known. They also bring a conceptual model of a determined mathematics; two plus two is not probably four, it simply and self evidently 'is' four. As a result, statistics, a mathematics of indeterminacy and uncertainty defies assimilation. No cognitive structure exists which can accommodate itself to these concepts without wrenching and distorting alterations to the structure. Teaching a context-less statistics course imposes an onerous, often insurmountable, cognitive burden on the typical student, no matter how bright, hard working, and motivated he or she might be. I argue that statistics initially should be taught in the research context in order to promote the

gradual development of a cognitive structure or conceptual network relating statistics to research design, execution and analysis. Thus elements and instructional units which seem arbitrary in isolation could be appreciated within the context that gives them meaning. Only after the development of this rudimentary cognitive structure is a student in the cognitive position to benefit from a statistics course, or an advanced experimental design course.

II A Proposed Solution

In considering the problems of undergraduate instruction in statistics vis a vis psychology I think we must also be very clear in our own minds as to our goals. Clearly we are not teaching statistics in an attempt to produce statisticians, nor for that matter are we teaching statistics as an end in itself. Rather, we teach statistics as a decision making tool in the research process, hoping that our students will become not statisticians but rather intelligent consumers of the various descriptive and inferential statistical procedures.

In this section I will describe a course that was deliberately designed to address the issues raised above, a course that deals with statistics in the context of the research endeavor introducing students to the various dimensions of that process within one framework. This course directly reflects my concerns developed in the first section of this paper, while also, of course, reflecting the constraints of the existing curriculum. Our majors are required to complete a course in statistics and an upper level course in experimental design and analysis. The new course in designed to be taken by freshman and/or sophomores as their second course in psychology following the introductory course. There are no prerequisites for the course beyond completion of the introductory course. No previous experience with statistics or computers is assumed.

The course, entitled Research Methods, covers aspects of non-experimental research. In designing this course I made several assumptions which, while debatable, have some face validity. First, I assume that it is possible to develop an intuitive understanding of elementary statistics in the absence of any mathematical understanding. Secondly I assume that students can become reasonably intelligent producers and consumers of statistical information without the accompanying computational ability.

In attempting to teach statistics within the total context of the research process I have defined four major goals of the course. The first goal is to develop the students' understanding of the major non-experimental approaches to research: observational research, survey research, and correlational research. The second goal is to develop an intuitive understanding of statistical applications and usages. The third goal is to help students develop expertise and confidence in the use of computers and statistical packages for data analysis. My final goal is to

develop in students rudimentary skills in scientific report writing.

Once I had formulated these goals I began to review texts for consideration for the course. I was not greatly surprised to find that no single text incorporates all of this material. I was pleased to find three paperback texts that between them do address these four major content areas. I will identify these texts by title and author not as a recommendation of them (although I personally am very satisfied with them), but simply as illustrative of the kinds of materials that are available and suitable for this level of instruction.

The first text, by Durso and Mellgren (1989) is entitled Thinking about Research. It covers all the fundamentals of research including various experimental approaches. It also includes extensive material on scientific report writing including explicit instructions on APA format as well as general tips on scientific writing style. There are also exercises and suggestions for research and an excellent teachers manual with additional suggestions. I do not assign the entire book since some of the material is well beyond the scope of this course, but the book is well written and easily understandable by the beginning student.

The second text is by John Phillips (1988) and is titled How to Think About Statistics. It covers the basic aspects of statistics in a non-computational fashion. Phillips goal in this text is to help the statistically naive develop a basic understanding of what descriptive and very basic inferential statistics mean. He succeeds admirably. His non-mathematical explanation of correlation coefficients is the most lucid I have ever seen.

The third text is SPSSpc+ Studentware (Norusis, 1988). The text by itself is a wonderfully clear, concise introduction to SPSS as well as related practical matters, e.g., how to set up a survey response sheet to permit easy coding and data entry. It explains each statistical operation with examples as well as the syntax used and options available within SPSS to carry out the operations. The bonus is that the text comes with a set of floppy disks which contain all the basic SPSS features for data manipulation and analysis up to and including Anova and Regression analyses. These disks can be used on any IBM or IBM compatible machine with dual floppy disk drives or they can be used to install the software on a hard disk. Importantly, the student has his/her own personal copy of SPSS which she/he can use anywhere. Although Studentware has some limitations, in most respects it is totally compatible with SPSSpc or SPSS mainframe versions which should ensure a large amount of positive transfer between systems.

My relief and even euphoria at finding three texts which met my instructional needs dissipated rapidly when I began to attempt to organize the course and prepare a syllabus. The problem is that the course in not the more usual sort of linear course where you

begin at point A and progress through a main text to the end of the course with some collateral readings along the way. Each of the texts is important, and each deals with a different aspect of an issue, so that they must be tackled concurrently. This resulted in a very detailed set of reading assignments which move constantly between texts. Initially I found it extremely difficult to coordinate the three texts. I did not solve the problem until I was able to formulate a general conceptual organization for the course.

The course is organized into three sections reflecting the three methods of non-experimental research. In the first section during which students design and conduct an observational study, we deal with elementary concepts such as operationalizing variables, rudiments of report writing, general considerations regarding scientific method and observation, elementary computer usage and elementary SPSS usage including creation of data files. The second section focuses on survey research and builds on the material in the first section. Topics such as sampling theory, data distributions, and descriptive statistics are covered in detail. In this section students receive their first exposure to the use of SPSS for data analysis. For this they use the cross tabulation procedure which challenges them to think about what the results mean while remaining well within their capabilities for understanding based on previous learning. The third and final unit involves the students in the design and execution of a correlational study. This introduces students to inferential statistics and provides the logical introduction to the issue of the determination of causality in psychology.

By the end of the course students have had exposure to all aspects of applied statistics and importantly they experience these aspects within the research context that imbues them with meaning. By involving the students in the design and analysis of the research from the beginning students gain first hand experience with elementary statistical applications such as data reduction and description, sampling methods and their limitations, problems of measurement error and variability, and data-based decision making. My hope is that this multi-dimensional but low-level introduction to statistics and research will generate the rudiments of a cognitive structure that will enable and facilitate the assimilation and accommodation of information in upper level statistics and experimental design courses.

The course along with its content is hardly unique. What is innovative is first the conscious attempt to take into consideration the students level of cognitive development and sophistication, and second the attempt to systematically generate a cognitive framework encompassing the research enterprise and particularly statistics as a critical element in the process. In order to do this I first attempt to generate student interest and involvement by using the campus community as our laboratory. From the beginning students are encouraged to and given guidance in developing research questions and studies about their own 'world.'

Thus from the beginning students have experience with all the facets of research, including the vital role of sampling and statistical description and analysis, on questions that are of intrinsic interest to them. I have found that the impact and pedagogical value of this is further increased if we can use a common theme or question throughout the course. For example, during this past spring the students in the course applied an observational approach, a survey, and a correlational approach to the question of the impact of the Gulf War on the student body. Clearly, operationalizing this question in three different ways was an experience that deepened their appreciation of the complexity of the process of generating knowledge as well as the relativity of that knowledge. That, in and of itself, is a desirable attainment.

Second, in generating their own research the students come face-to-face with all the problems and challenges of the enterprise. Importantly, they begin to see how 'statistics,' from sampling theory to inferential analysis, is an integral part of the process. Rather than being an abstract, numerical exercise, statistics comes to be appreciated as a necessary utility without which the researcher could not make sense of the data. They also begin to build an appreciation of how statistical considerations also influence the design and conduct of the study itself. From a Piagetian vantage point, students confront statistics at a concrete operational level when they experience statistics in context. This should help students develop the requisite cognitive structure for assimilation of statistical concepts and as a result should also facilitate the transition to formal operational thinking about statistics.

After one academic year, my informal impression is that the students who have had the course can be made comfortable with both statistics and the use of statistical packages at least for low level descriptive and analytical purposes. For example, by the end of the course students readily used SPSS to generate scatter plots, regression lines, and correlation coefficients. They were also able to discuss these intelligently and to draw reasonable conclusions from them. And this from a class of predominately freshmen!

The longer-term effects remain to be seen. I intend to follow the progress of these students during the next several years. I will be gathering information on their grades in the required statistics course was well as subsequent lab courses. I will also be discussing their progress with their instructors in these courses. My hypothesis, and of course my hope, is that their performance will be improved relative to earlier students who did not have the course.

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RELEVANCE AND RESEARCH:
USING A SURVEY OF CAMPUS ENVIRONMENTAL ATTITUDES
IN A RESEARCH METHODS COURSE

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Since the Fall semester of 1989 I have incorporated into my research methods course a survey of campus environmental attitudes. The survey has been used as one of the several required laboratory exercises that students must carry out each semester. Although the course has traditionally focused on experimental design and statistical methods, I decided to depart from my previous emphasis for two reasons, both related to shortcomings I perceived in the curriculum at the time.

First, I became increasingly aware of the important role of surveys in student research. More early experience handling this kind of instrument could make research less intimidating and more inviting for students. We have been making a continuing effort to involve students in more research, and greater preparation in the use of this methodology could serve this end. In addition, for more general reasons students need to be made more aware of the advantages and disadvantages of survey instruments. The results of surveys and opinion polls are constantly being displayed in the news media and cited as considerations in policy decisions. An informed electorate needs some critical awareness of this methodology.

A second reason for the development of this laboratory exercise concerns the content rather than the method. Over the past ten years there has been a growing consensus that environmental problems are serious matters in need of attention, both locally and globally. (I should probably add that the only exception to this growing awareness seems to be in the federal

administration, where it is largely restricted to campaign statements.) Students are of course not an exception to this consensus; many have strong reactions on environmental issues, although there naturally is a wide variety of opinion.

But despite the increasing interest and importance of environmental issues, and the clear need for graduates to be informed in these matters in order to make appropriate voting and policy decisions, students have very little exposure to these issues in the traditional curriculum. I have been somewhat puzzled by this lack of exposure across the college curriculum, and am inclined to speculate that what I perceive as an educational gap may be partly due to the interdisciplinary and applied nature of environmental problems. In addition, there may be some reluctance to cover these issues because they might be perceived as inappropriately political.

In any case, using a survey of campus environmental attitudes provides a good opportunity to expose students to an important and useful nonexperimental methodology, while also allowing them to pursue a better understanding of a topic that concerns them and has real contemporary relevance. I should add that more recently the idea of incorporating environmental issues into the curriculum has gained increased attention through the conference of University Presidents for a Sustainable Future, organized by Tufts University President Jean Mayer and held in October, 1990, in Talloires, France. Tufts' efforts to incorporate environmental issues into the curriculum are also seen in their Environmental Literacy Institute, which began

offering workshops for their faculty in Summer 1990, and is opening the workshops to faculty from other institutions this summer.

The development and use of a survey for the present purposes has typically involved several stages and decisions. As carried out at Ursinus, the exercise included four components:

(1) Preparation of a packet of background readings;

(2) Creation of the survey;

(3) Administration of the survey by students;

(4) Analysis of the results (using SPSS).

One advantage of this type of laboratory exercise is that there is considerable flexibility in the amount of student involvement. Thus, the instructor has choice at almost every step whether to increase student involvement and class time spent on the project, or to streamline the exercise for students by providing the background materials, questions, results, etc., and limiting class time to discussion of basic methodological issues such as reliability, validity, sampling, response set, etc. Let me now consider the four components of the lab exercise in more detail:

(1) Background Readings

Because an essential goal of this exercise has been exposing students to environmental issues, background readings for this lab have typically not been from psychological research journals. Furthermore, since the previous exposure of students is quite varied, and the accessibility of relevant articles is often limited, I have chosen to provide students with a packet of

articles gleaned from a number of sources, including Scientific American, The New York Times, Union of Concerned Scientists, and several publications of environmental organizations. I have also encouraged students to explore other sources.

One could, of course, require them to be more independent or to focus more on the methodology of the survey, but given my particular goals, my providing the information packet has been effective, though a bit time-consuming for me. (I have a few of the packets here if you wish to look them over after the presentation.)

(2) Creation of Survey

In creating the questionnaire the most immediate choice concerns the degree of student involvement in generating questions. Since students learn a great deal in the process of creating, discussing, and revising survey items, and they must also first know something about the issues before creating items, there are real educational benefits to student involvement in survey creation. On the other hand, there are also significant costs in this process. Even after students are made aware of the concepts of reliability, validity, bias, etc., it is surprizingly difficult for them to generate good items. Thus, the process can become a lengthy, tedious, and sometimes frustrating classroom exercise, depending on the length of the survey. Fortunately, since I have been making minor revisions in the survey each semester, rather than generating a new instrument with each class, I have found it quite workable to involve students in work

on new items without a major investment of class time.

The survey that I have used has included questions of several types. In addition to demographic and opinion-based questions related to public policy issues, I have included some questions designed to assess subjects' knowledge of environmental issues. These questions enable students to investigate relationships between knowledge items and others concerning opinions, age, exposure to news media, etc. Since many of the survey items have been used repeatedly in successive semesters, one can also examine changes in student awareness and opinion over time. (See examples.)

Finally, some of the items on the questionnaire have been taken from other sources, such as the national survey of college freshmen, New York Times surveys, and opinion polls sponsored by the Union of Concerned Scientists. Although the samples are from different populations, students are nonetheless able to compare results and discuss them in light of these differences.

The current revision of the survey has 41 questions, which I expect is about the maximum that I will use for the present purposes. Although a variety of environmental issues are touched on in the survey, there is an emphasis on global warming and energy policy, largely because these have been particularly prominent issues in the media in the past 2-3 years.

I should point out one other issue that I try to make my students aware of. Attitudes as represented on a survey are not necessarily consistent with behaviors. I have made an exploratory effort to get around this problem by asking some

questions that concern behaviors, such as items 11, 19, and 41, but such items ultimately are a poor substitute for actual behavioral measures if they are possible.

(3) Survey Administration

The students in my course administer the survey by contacting subjects in person, and picking up the questionnaires when they have been completed. Subjects are selected from an alphabetical list of resident students, with each student in the class being assigned 8 subjects. Thus the sample size is usually 70-100 for the typical class size. Inconvenience to the subjects is minimized by having them respond directly on the questionnaire and having students in the class transfer data to Scantron forms, which are turned in along with the questionnaires within one week. The use of systematic sampling from an alphabetical list of students ensures a sample that is representative of the resident student body, although I sometimes make adjustments in the sample when the initial procedure leads to a large gender imbalance. I usually try to impress upon the students the seriousness of the data collection effort, and cooperation is typically excellent.

(4) Analysis of the Survey Results

The results of the survey have been processed using a Scantron Model 2100 OMR Data Terminal on line with a Leading Edge Model D computer equipped with a resident SPSS/PC statistical

package. The interface program for creating the SPSS data file was written by George Fago of the Psychology Department at Ursinus. Thus far I have done these procedures as well as the subsequent statistical analyses myself, but the Psychology curriculum at Ursinus is currently in transition, and a second methods course that was started in Fall, 1990, will ultimately prepare students to conduct the statistical analyses themselves. (In another presentation at this conference, George Fago discussed approaches to teaching statistics in the new methods course.)

The analyses used in this lab exercise have included primarily correlations, as well as selected chi squared analyses and *t* tests. These are discussed in class, and students also have the opportunity to pursue other specific statistical hypotheses and to consider the results of previous semesters if they wish.

In conclusion, I have found that use of a survey of environmental attitudes on campus has been received very favorably by the students. There is a creative enthusiasm in their lab reports on this exercise that is both refreshing and indicative of real interest and motivation. The results of the surveys have been quite interesting as well. Although my presentation here has not included discussion of any findings, I'd be glad to respond to any questions about the survey.

Student Perceptions of Short, In-Class Experiences for Social Psychology

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Many classroom exercises exist to facilitate the teaching of social psychology. However, I have found several problems with many of the classroom experiences available for social psychology classes (e.g., Pines & Maslach, 1979).

First, I generally do not like in-class projects that consume the entire class period (although there are some exceptions, for example, the Subarctic Survival Task (Head, 1986) and Benjamin's (1985) aggression exercise). Thus my focus has been to create or find relatively short, but involving, projects for in-class experiences.

Second, I have found that it is difficult to get class members to do out-of-class experiences regularly unless they are graded (even extra credit is an inducement for only part of the class). Thus, I have focused on in-class experiences.

Third, I am not fond of projects which require a great deal of data collection or analysis <u>in class</u>. Students seem to get bored when I bring out my calculator or spend very much time with numbers. It is possible to conduct exercises a week or so before data are distributed (e.g., Schiavo, 1990), but that approach detracts from the immediacy of feedback, and requires a substantial out-of-class time investment on the part of the instructor. I have tried to create or find exercises which minimize data analysis for these in-class projects.

Fourth, I don't have a great deal of time to spend on preparation for exercises. Thus, I have tried to minimize the out-of-class preparation time required for the experiences.

Finally, I like to plan ahead. For each exercise, I

indicate the approximate time to complete the exercise, and any preparation the instructor needs to do ahead of time.

Students' perceptions

Some of the literature (e.g., Berrenberg, 1987) includes students' perceptions of an exercise, typically using descriptive statistics. However, in many other cases (e.g., Benjamin, 1985; Lashley, 1987; Makosky, 1985) reports of student perceptions are presented in anecdotal form. It seems difficult to find studies which directly compare several exercises used over the course of a semester. The purpose of the present study was to do so.

Method

Subjects

Subjects were 48 students enrolled in a social psychology class during the Fall, 1990 semester. There were 8 males and 40 females.

Materials

Seven in-class exercises were used, 5 of which were obtained from Whitford and O'Quin (1991). These were entitled "Common Sense", "Self-Presentation", "Status and the Transactional View of Leadership", "Similarity of Attitudes and Attraction", and "Designing a Drug Prevention Program". The other two exercises, included for comparison, were the Subarctic Survival Task (Head, 1986), and "Whom Should We Hire?" (source unknown). All exercises are available from the author.

A 12-item questionnaire (Appendix A) was used for evaluation of the exercises. It included student ratings of time required for the experience, amount of learning, contribution to

understanding social psychology, willingness to recommend the experience to other students, etc. It also included a space for student comments.

Procedure

All exercises were presented as a part of regular classroom instruction. Students participated in small groups ranging in size from 4 to 6. Exercises varied in length from about 15 to about 50 minutes. Immediately following each exercise, students rated it using the 12-item scale. The instructor solicited written comments as well.

Results and Discussion

Data reduction

Preliminary factor analyses (principal components, varimax rotation) of the 12 items for each of the 7 exercises showed that 3 or 4 fairly similar factors were obtained for each exercise. Items were grouped on the basis of their similarities across the 7 factor analyses. Reliability analyses (coefficient alpha) were then performed for each subscale for each exercise. The average and range of reliabilities are presented in Table 1. As may be seen, average reliabilities were fair to excellent, although some individual exercises yielded poor coefficient alphas.

Subscale scores were obtained by recoding items if necessary (as indicated in Table 1), so that a high score indicated a positive evaluation, and computing the mean. The first two items from the 12-item scale, measuring whether the exercise was suited to one's ability and the time required, did not consistently load on the same factor. They were analyzed separately.

Comparison of exercises

Table 2 presents the means and results of post hoc analyses for the seven exercises. One-way analyses of variance were used to compare the means, and all F values were significant ($p < .001$). It is important to keep possible order effects in mind when comparing the exercises with each other; of course, only one order of exercises was possible in a single class in one semester.

With regard to ability, the "Common Sense" exercise yielded the lowest rating (3.02 on a scale where 4 was "just right"). "Status and the Transactional View of Leadership" and the "Subarctic Survival Task" were perceived as requiring the highest ability, followed by "Designing a Drug Prevention Program".

With regard to time required, students perceived "Common Sense" as being just right. All the other exercises had higher means, although only two were significantly higher: "Self-Presentation" and "Status and the Transactional View of Leadership". Thus, students perceived several of the exercises as requiring too much class time.

On ratings of fun, it was interesting to note that "Whom Should We Hire?" was perceived as most fun, followed closely by the "Subarctic Survival Task". These tried-and-true favorites seemed to be the best. The least fun, although still above average, was "Status and the Transactional View of Leadership". The exercise required students to role-play. My own perception was that I myself interfered with the fun of the exercise, by reminding students to keep to their roles. They got so involved

in the discussion of the topic that they forgot to role-play.

On ratings of usefulness, the highest was the "Subarctic Survival Task", followed by "Whom Should We Hire?", "Self-Presentation" and "Designing a Drug Prevention Program". For ratings on the clear scale, "Whom Should We Hire?" was rated highest, followed by "Common Sense".

Finally, for the educational scale, the "Subarctic Survival Task" was rated highest, followed by "Whom Should We Hire?" and "Self-Presentation". It should be noted that, although no statistical test was performed across dependent variables, that the ratings of educational contribution were lower for all exercises than the ratings of clarity, usefulness and fun. I did not ask students to justify their ratings, but informal reports indicated that students felt they learned more from lecture (perhaps more test-relevant information), although the exercises were seen as providing a valuable break in a 75-minute class. Another point to note is that I did not specifically include test questions related to the exercises, although of course there were test items related to the content covered in the exercises. The issue of whether students do learn more from lecture than from exercises, especially with regard to long-term retention of material, is clearly one for future study.

In summary, then, students perceived many of the exercises as requiring too much class time. Although most exercises were perceived as fun, clear, and useful, their contribution to education was rated somewhat lower. Results suggest that future research should compare the long-term effectiveness of such

classroom exercises upon student learning.

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Table 1

Items in the Subscales and Reliabilities

Subscales	Average Reliability	Range
Fun (2 items)	.69	.46-.89
not fun-fun interesting-boring*		
B. Useful (2 items)	.68	.32-.83
useless-useful worthwhile-worthless*		
C. Clear (2 items)	.66	.54-.80
confusing-clear understandable-mysterious*		
D. Educational (4 items)	.88	.76-.92
How much did you learn from this exercise?		
To what extent was this exercise a valuable educational tool?		
Would you recommend that other students use this exercise in this course?		
To what extent did this exercise contribute to your understanding of social psychology?		

Note. Items marked with an asterisk above were recoded before averaging to form the subscale score.

Table 2

Means and Post Hoc Analyses for Comparison of Exercises

	Dependent Variables					
Exercises	Ability	Time Required	Fun Scale	Useful Scale	Clear Scale	Educational Scale
Common Sense	3.02_{a}	4.04_{a}	5.09_{a}	5.09_{ab}	6.11_{bc}	3.92_{ab}
Self-Presentation	4.69_{bc}	5.12_{b}	5.68_{abc}	5.69_{b}	5.74_{bc}	4.53_{ab}
Similarity of Attitudes & Attraction	4.39_{b}	4.76_{ab}	5.55_{ab}	5.39_{ab}	5.83_{bc}	4.16_{ab}
Status & the Transactional View of Leadership	5.33_{d}	5.60_{b}	4.82_{a}	4.78_{a}	4.36_{a}	3.60_{a}
Subarctic Survival Task	5.34_{d}	5.48_{b}	6.30_{bc}	5.81_{b}	5.38_{b}	4.98_{b}
Whom Should We Hire?	4.52_{bc}	4.63_{ab}	6.48_{c}	5.74_{b}	6.57_{c}	4.67_{ab}
Designing a Drug Prevention Program	5.11_{cd}	4.85_{ab}	5.45_{ab}	5.56_{ab}	5.59_{bc}	4.38_{ab}
$F(6,42)$	21.93	11.68	38.03	6.74	27.94	13.54

Note. Within each column, means with same subscript do not differ at the .05 level (Tukey). All F values are significant at the .001 level.

THE USE OF STUDENT PRESENTATIONS IN DEVELOPMENTAL AND SOCIAL PSYCHOLOGY CLASSES

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THE USE OF STUDENT PRESENTATIONS IN DEVELOPMENTAL AND SOCIAL PSYCHOLOGY CLASSES

Student presentations may be used in any non-research, non-statistics course. But this technique is used best in applied and clinical psychology courses. Students may work alone or in groups of 2 or 3. In most situations, student groups of 4 or more are less successful since it is difficult for students to find mutually agreeable times to plan and work on their presentations. It also becomes difficult for them to meaningfully divide the groups's general theme so that each student has an appropriate topic. The most successful presentations result form cooperative efforts in which students work together on a single classroom presentation. However, in some courses, 2 or more students may do individual presentations on the same day.

The amount of instructor guidance/control may vary. In lower level courses, the instructor may wish to select the topics to be presented and allow students to choose from the teacher-generated topics. In Higher level or more applied courses, the instructor may wish to allow students to choose their own topics. In such courses, the instructor may wish to encourage creativity by giving students class time to form groups and select their own topics with minimal instructor input.

Regardless of the group format or amount of instructor input, it is vital that the instructor describe the assignment (requirements, criteria for grading, etc.) as early in the semester as possible. It is also vital for students to be provided with a written handout describing the nature of the assignment, the requirements, criteria for grading, common problems, etc.. This can be included as part of the course outline. For an example, see Appendix A. However,

in order to prevent procrastination, the instructor may choose to have each group submit an index card indicating the names of the students comprising the group, the topic of the group's presentation, each student's specific topic, and the format of the presentations. It is wise to do this about 2 weeks after the assignment is made. It forces students to "gel" their ideas, eliminates any overlapping topics, and allows the instructor the opportunity to "control" the content and make suggestions for improvement.

It is helpful to provide students with examples of formats their presentations might take: psychodrama, panel discussion, debate, game, lecture, or TV show format. Students are fond of using videos and audio tapes; it is a good idea to put a time limit on this (5-10 minutes, depending on the length of the presentation). Some students enjoy video-taping interviews with professionals in the field; as a general rule of thumb, these interviews are very well done and often merit a longer time limit (15-20 minutes, depending on class length). It is necessary, however, for students who wish to tape a professional interview or a more informal interview with friends-family to clear the interview with the instructor first. Unethical, unrealistic, or inappropriate ideas can be rechanneled into more acceptable suggestions. Students whose presentations are straight forward and more didactic should be encouraged to supply the class with handouts relating to the presentation. True-false tests on common misconceptions work well with class members.

The instructor should emphasize, in cooperative assignments, that each student must participate equally in the actual presentation. This notion is reinforced by grading each member of the group separately from every other member. It also eliminates "upgrading"

of mediocre effort or downgrading above-average performance.

Student presentations work best if they are planned for the end of the semester. This allows students sufficient time to prepare and reduces the instructor's "performance" time at a point in the semester when other demands require attention. Criteria for grading may be evaluated casually or on a likert-type scale (see Appendix B). The following criteria may be included:

overall quality of performance
accuracy of information
effort time expended in preparation
professional interview-visitation
handouts
timeliness-interest value

Other assignments related to the presentation assignment should be graded separately. For example, a research paper on the content of each student's presentation may be assigned and given a separate grade.

Two problems are commonly encountered with this technique: students not "pulling their fair share" of the preparation (ie., not showing up for meetings, hard to contact, work not done on time) and students absent on the day of the presentation. The first problem can be ameliorated by having each student keep track of the amount of time s/he spends preparing for the presentation and exactly what was done to prepare. As soon as the presentation format is decided, each group is given a form to fill out, indicating who the participants were, what each one did, how much time was spent in preparation, how many outside-of-class meetings were held and who attended. Each student is required to sign the form indicating agreement on all the information provided. In the event that signing the form is not sufficiently motivating, the

other students in the group are instructed to continue with the assignment as planned and to refuse to change their presentation at the last minute to accommodate the prodigal student. The prodigal student must fit him/herself into the already established presenstation.

The second problem involves student absenteeism on the date of the presentation. Emphasizing students' responsibilities to their groups and classmates goes a long way to alleviate this problem. Most students will fulfill the expectation that they will be present for their presentation. The only acceptable excuses for absenteeism are student illness (verified by a phone call to the student health service or doctor's written excuse) or death in the family. Students who are absent for the presentation for these reasons will be required to give their presentation at the convenience of the class schedule when they return. Students who are absent unexcused receive a grade of F for their presentation. It is important to understand that this does not happen often, particularly if students know what the consequences will be in advance.

Although a few students dread the presentation, most students report that they enjoy the activity. It gives them the opportunity for creative expression, practice in public speaking, encourages them to apply the content of psychology to real experience, and can provide an excellent catalyst for classroom discussion. It can also help students realize that they can learn from each other. But most importantly, cooperative group presentations give students experience in working with others to accomplish a goal. Employers often complain that college graduates do not work well as team members; this assignment gives students some experience with team effort.

Do non-participating students actually learn anything from their classmates presentations? We investigated this question in a Death & Dying course during the Fall semester 1989 by evaluating students' multiple choice test performance across four instructional strategies: instructor lecture, textbook readings, guest lecturer presentation, and student presentations. The results of the study indicated that student presentations produced superior learning over the other three strategies. The actual nature of this learning activity, the increased level of arousal through identification with the presenters, and the novelty provided by a change in classroom routine all contribute to make student presentations a beneficial and enjoyable experience.

APPENDIX A

Group Presentation & Paper Assignments

You are required, as one of your assignments, to participate in a group presentation and to write a 5-7 page research paper based on your contribution to the group.

On a day to be announced in class, the entire class will be divided into 6 groups of 3-4 students each. Students may decide earlier who will constitute their group. Each group will select one of 3 broad areas of development to study according to the following arrangement.

Young Adulthood (18-39)
- Group 1
- Group 2

Middle Age (40-64)
- Group 3
- Group 4

Old Age (65 +)
- Group 5
- Group 6

Once the 6 groups have formed, students within each group will select a theme for their group. The theme may be selected from life experiences or by reviewing topics in the text for that developmental area. Once this is done, each group will further divide its theme into a number of specific topics so that each student has a specific topic to research. This process should occupy all or most of the class.

Beyond this pre-arranged class day, group must meet on its own to plan its presentation. Students may proceed independently to work on their 5-7 pg research papers on their specific topics. Guidelines for this paper are described in previous sections of this handout.

Presentations: Each group will be responsible for conducting 1 full class session. Group presentations in the past have consisted of psychodrama (i.e. skits), debates on issues, game shows, imitations of TV shows (i.e. Dr. Ruth Shaw, Phil Donahue), but the presentation should be limited only by practical constraints and ethical considerations. Creativity and accuracy of content are the main goals. Each student must participate equally and fully in the group effort. Each group will be asked to complete a form describing exactly what each member did to prepare for the group presentation, how much time each member spent in such preparation, whether or not interviews were done for the preparation, how many times each group member met with the group for planning the presentation. Each member of the group will sign the form to signify accuracy of the information.

Presentations will be graded on the following criteria:

1) Creativity - (did the group do something novel/different or did it simply report its research, read its papers to the class or psychodrama the obvious?)

2) Accuracy of Content - (was the portrayal accurate in terms of the topic presented, or was it inaccurate and overly melodramatic)

3) Quality of Performance - was the presentation interesting, did it keep students involved, asking questions, laughing; or were students bored, falling asleep, looking at the clock? Was the presentation logical, or thrown together and not organized?

DESCRIPTION OF PRESENTATION GRADES:

A - outstanding, creative, interesting, thought provoking
B - good portrayal, good attempt at creativity
C - average, read papers to class, psychodrama was mundane or over-done
D - marginally acceptable, lacks interest, little effort obvious, perfunctory
F - non-existant or appears hastily done at the last minute, insufficient effort, an embarassment to watch

Social Psychology

Group Presentations

Each student is required to participate in a group presentation. Students may elect to join a group to explore, research, and present to the class information on one of the following topics.

1. Persuasion - Invent a product and design a campaign to promote its use among some population (e.g., women, college students, or children). Be sure to review the research on the importance of speaker characteristics, type of message, and audience characteristics. You might want to present this as a group of advertising agents making a sales pitch to a businessperson seeking to market a product.

2. Aggression - Identify at least one infamous act of aggression and research the literature on the causes of aggression. You may choose a war, a mass murder, cults (e.g., Jim Jones or Charlie Manson), terrorism, or any other heinous act as a starting point for your research and discussion.

3. Prejudice and Discrimination - Outline for the class the prevalance of prejudice and discrimination in our society. How strong are the various forms of prejudice. What, according to the literature, causes prejudice? What are the effects of prejudice? How can prejudice and discrimination be combated? You may wish to focus on racism, sexism, ageism, or some combination of these.

4. The Media and Modeling - Identify one or two common behaviors modeled by one of the media (e.g., TV, movies, videos, magazines). According to the literature, what are the effects of these media images? How do they influence children? How do they influence adults? What, exactly, do they teach?

Social Psychology

Presentations

Each student is required to select a topic relevant to Social Psychology, conduct a review of the literature (see "Writing a term paper handout), and then present her/his findings to the class. The topic you choose will become **your** area of expertise! Topics must be approved by the instructor no later than _____.

Your presentation should be approximately 10-15 minutes in length. Your job is to teach the class -- you must make them understand the general concepts and experimental results you report. You may use any instructional strategy or technique you desire. Please let me know at least two weeks in advance if you require any audio-visual equipment or other special support services. You may use quizzes, demonstrations, videos, role-playing, interviews, panel discussions, debate -- whatever you wish.

Topic selection should begin with a perusal of your text. Your text touches upon many interesting and exciting topics -- there is something for everyone! However, topics will be assigned on a first come, first serve basis -- so get yours early. Remember **all** topics must be approved by me by _____.

Each presentation will be graded using the "Evaluation Form for Student Presentations". Students who fail to appear on the date of their presentation will receive a failing grade. Term papers are due on the date of your presentation -- -- **NO EXCEPTIONS**!

Appendix B

Evaluation Form for
Student Presentations

Student Name: _____
Date: _____ Topic: _____
Rating: _____ Class: _____

This form will be used to grade all presentations.

_____Appropriateness and significance

25 - Extremely appropriate and significant
20 - Quite appropriate and significant
15 - Somewhat appropriate, but trivial
5 - Not consistent with assignment
0 - Totally unrelated
Comment:

_____ Documenation

25 - Excellent
20 - Good
15 - Fair
5 - Mostly opinion
0 - None
Comment:

_____Line of argument

25 - Extremely clear & convincing
20 - Good - clear & convincing
15 - Fair - not very convincing
5 - Muddled & confused
0 - Unintelligible
Comment:

_____ Style and Length of Presentation

25 - Excellent rhetoric & style
20 - Very good - Few errors
15 - Some serious errors
5 - Many errors - Poor
0 - Gross errors - not understandable
Comment:

Assessing the Value of Firsthand Knowledge in a Developmental Psychology Class: Learning through observation, a comparison of Methods

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Students can gain a great deal of knowledge through the traditional class activities such as lecture, discussions, audio-visual presentation, and readings. Additionally, students may benefit from a less frequently used pedagogical technique of requiring students to directly participate in data collection.

Developmental and Child Psychology courses readily avail themselves for students to record data during observational activities. The content areas, of most other psychology courses, also suggest opportunities for students to have firsthand data collection experiences. The first-hand experience of data collection should not be reserved for Experimental Psychology courses.

During the last ten years in which I have taught Developmental Psychology courses, I have compared the impact of using several different formats for observation activities. These will be described in more detail below. I will also discuss the relative value of each of these forms of observations, by comparing examination score results and responses on student course evaluations. Application of these methods for other courses will be discussed.

We vary classroom activities, hoping that they may have a positive effect on student learning. Perhaps we should also be willing to acknowledge that these variations "break the boredom" for our students and ourselves. Engaging in an activity that is different from the typical format can motivate student learning and "wake up" the professor, or "wake up" the student and motivate the professor. I generally limited my variations in mode of activity, to those I felt would directly enhance the quality and accuracy of student responses on various assessment devices (e.g., paper, quizzes, examination). On several occasions I incorporated activities into the course that I believed would have a direct impact on student learning, as demonstrated in concept assessment, only to find that the activity had no positive effect. Normally, I would discard that particular activity, because I could not justify using class time. After more thorough investigation, I frequently discovered that although a particular activity did not have the impact on "grades" that I had hoped for, It did positively effect other aspects of students' behaviors. These behaviors may be as important as those formally assessed during examination, and are certainly a valued part of the educational experience. These learning outcomes need to be assessed, and in many cases these behaviors are not directly evaluated.

I have utilized several different student data collection activities as requirements for my child development classes. I have compared the value of each of thee methods against each other, and against classes in which I had no required data collection experience. I compare these different group of students' examination grades and particularly their scores on items which related directly to methods of data collection. I also compared course evaluation from these various groups. I was particularly interested in their motivation to learn more, their perceived knowledge about children, and their belief about whether they learned something new or "unexpected" in the course. Six major variations of the class activities I used are outlined below:

(1) Outside-of-class (open) - Students were assigned to observe a child or children for a minimum of 30 minutes and write down what they observed using any format.

(2) Outside-of-class (defined) - Students were assigned to observe a single child for 30 minutes. Before observing the child they were to operationally define the single behavior they planned to observe. They also designed and used a structured data recording sheet (event or time sampling).

(3) In-class video (open) - Students observed a video of children in a preschool classroom. Three teachers, one child's mother, and eight children were present. The student were told to observe a child or children in the video for 30 minutes and to write down what they observed using any format.

(4) In-class video (defined) - Students observed the same video as describe in (3), but were to use the method described in (2).

(5) Child-in-class (open) - A child (3 years old) visited the class with his/her mother. Students were told to observe as in (1).

(6) Child in-class (defined) - Subject of observation same as in (5), but students used method described in (2).

Not all activities were equally beneficial or had the same pattern of benefits. All activities added to the learning experience when compared with the no-activity group. Students examination grades were evaluated, there stated motivation to learn more, their perceived gain of knowledge, and the level that they gained unexpected knowledge. Other measures were taken as well, but only the results of these four will be outlined below.

(1) Outside-of-class (open)
concept development - minor effect
motivation - no effect
general knowledge - minor effect
learned unexpected - moderate effect

(2) Outside-of class (defined)
concept development - large effect
motivation - no effect
general knowledge - minor effect
learned unexpected - moderate effect

(3) Video (open)
concept development - moderate effect
motivation - minor effect
general knowledge - moderate effect
learned unexpected - minor effect

(4) Video (defined)
concept development - large effect
motivation - large effect
general knowledge - moderate effect
learned unexpected - minor effect

(5) Child-in-class (open)
concept development - minor effect
motivation - large effect
general knowledge - large effect
learned unexpected - large effect

(6) Child-in-class (defined)
concept development - minor effect
motivation - large effect
general knowledge - large effect
learned unexpected - large effect

At the first level of evaluation, how well the students did on examination items, some activities seemed clearly more beneficial than others. For example, the child-in-class observation activity did not positively enhance examination grades, but did have a large positive effect on all other aspects of student learning evaluated in this paper. Learning involves more than just concept development, as demonstrated on examination performance.

The students consistently reported enjoying having the mother and child visit class. They "valued" having this experience. They consistently indicated that more classes should incorporate real-life activities, "so they can relate what they learned from the text and the lectures to their lives," The students did not enjoy the activities as much when they were asked to systematize their data collection methods. They did appear to benefit from the experiences even though they did not like them as much. Enjoying class should not be a crime, nor should it be the ultimate goal. If we can successfully find a way to integrate the two, this may result in the greatest overall gains for the students.

As instructors we need to open the range of experiences and opportunities, we make available to our student. We only have them with us one semester (in some cases multiple courses). They have a whole lifetime of learning before them, and if we can give them tools to use when they are faced with life's experiences, and the motivation to see these experiences as learning opportunities, then I believe we have given them much more than just basic course knowledge.

Teaching Ethics

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Panel Presentation
5th Annual Conference on Undergraduate
Teaching of Psychology: Ideas and Innovations
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It is essential that students are accurately informed about ethical issues pertaining to psychological research. These issues can be integrated into the existing courses in a departments curriculum and discussed within the context of the subject matter of the particular course. This article will discuss issues related to teaching ethics and will provide some recommendations for ways to expose students to a full range of ethical matters. The paper begins with a discussion of suggestions to enhance the teaching of the American Psychological Associations ethical principles (1982) with respect to ethical issues in human research. The next section of the paper includes a discussion of a role-play exercise which can be used to teach students about ethical issues that exist in animal research. Subsequently, ethical issues that arise in teaching about applied health and social research are considered. Finally, issues pertaining to teaching about research ethics and fraudulent research are presented.

TEACHING ETHICS

I

ETHICS IN HUMAN RESEARCH

In my experimental social psychology course, students conduct several small studies - observational, survey, and experimental - and one major laboratory experiment. Usually I talk about ethics in the middle of the semester, right before the students begin their major lab study. Then, the APA principles for conducting human research are very fresh in their memory.

When I teach ethics, I usually give a brief lecture followed by class discussion and exercises. Students are asked to evaluate research examples and their own experiments. In addition, they must complete an ethics proposal that is reviewed by the psychology department. The best way to teach ethics is to practice what you preach. Don't explain to students the harm that excessive deception can cause and then help a student research group devise a triple order deception in their experiment.

THE EXPERIMENTER - SUBJECT RELATIONSHIP

Because the experimenter is viewed as an authority figure who "knows what's going on" and the subject is a naive, and usually younger, volunteer, there is an inherent power differential in this relationship. I discuss this situation with the students and help them to understand the importance of not abusing the power they have as experimenters. Subjects should be treated with respect and in a professional manner.

INFORMED CONSENT

In order to insure that students are adhering to the principle of informed consent, I have developed guidelines for student research in my classes. When students sign up subjects in their classes, they must explain what the study is investigating, what the subjects will be asked to do, and how long the experiment will take. All students doing research in the department are required to have subjects sign a standard informed consent form. In addition, students are continuously reminded that subjects are volunteers who can leave at any time without being penalized. They can not be coerced into participating (fraternity brothers can not require pledges to be in an experiment) or penalized for not showing up for a study (no demerits).

CONFIDENTIALITY

Stress that individual responses must be kept anonymous and confidential. Students must be taught how to be professional. Don't assume that even your best students will know how to behave. No laughing at subject's behavior, no gossiping to friends or other members of class about subjects, use code #s - no names. Obtain written permission if subject will be videotaped or audiotaped and special permission to show tape to the professor or the class.

INVASION OF PRIVACY

In my class lecture, I focus on the different types of invasions of privacy - observational studies, personal questions asked on surveys, field experiments, disguised projective tests.

There are many good research examples to discuss in class:

Middlemist, Knowles, and Matter (1976), urinal study. Humphreys (1975), tearoom trade - observations of homosexual activity in public restrooms. This study is also good for discussing deception and informed consent.

DECEPTION

Many textbooks make the distinction between passive deception (withholding information about the experiment) and active deception (providing misinformation). Active deception is usually seen as more harmful to the subject.

One of the problems I have encountered when supervising student research is that students love to include deception in their experiments. Students who have taken my experimental social psychology course even want to use deception in cognitive and perception experiments where it is not needed at all. Consequently, I have really tried to reduce the use of deception and especially active deception in their research.

Kelman (1967) provides a good discussion of the implications of deception in the experiment-subject relationship and compares it to deception in any other relationship. This usually gives students a new perspective on deception. I then talk about whether deception actually "works" and we discuss alternatives to deception such as role-playing and simulation studies.

PROTECTION FROM HARM

A distinction is made between physical and psychological harm. Most students can recognize physical harm and understand why subjects should not be exposed to it, although they all have an affinity for the frustration-aggression shock experiments. I have found that they usually don't think of the psychological harm that their manipulations may cause. Certain experimental procedures may cause a loss of self-esteem, embarrassment, etc.

There are various procedures that may cause psychological harm: failure experiences - subject obtains low score on test that supposedly predicts ability to get along with people, opportunities to cheat, lie, or steal during the experiment, exposure to sexually arousing stimuli, embarrassing questions on surveys.

The following studies are good examples to discuss in class:

Milgram (1974), obedience study - or as a philosopher friend called it, that horrible shock study.

Darley (1979), subjects were told that they would be receiving painful shocks, but that the results of the experiment would aid in alleviating suffering from hearing loss. This was actually a fear and affiliation study.

Hetherington and Feldman (1964), subjects given the opportunity to cheat. Their cheating behavior was associated with various person and situational variables.

Lovaas, Schaeffer, & Simmons (1965), use of electric shock in treating autistic children.

Farr & Seaver (1975) report subjects' ratings of various experimental procedures in terms of invasion of privacy and discomfort. Interestingly the ratings for most procedures were fairly low. Providing students with these ratings may be helpful as a guide to determine what subjects consider stressful. However, people may react differently to actually being in the situation.

DEBRIEFING

The goal of debriefing is to fully inform subjects about the experiment, especially if there was any deception. One problem I have in educating students about proper debriefing procedures is that we are at a small school were gossip travels very fast. Students usually don't want to

and will not fully debrief unless they are carefully monitored. Consequently, they are required to provide me with a copy of the written debriefing. It must include an explanation of the hypothesis stated in simple terms, an explanation and justification for any deception, and an assurance that individual responses will be anonymous and totally confidential, only group averages will be reported.

Subjects are also given the opportunity to receive a copy of the results at end of semester. I instruct students that it is their responsibility and part of their ethical obligation to the subjects to do this. I also check with them repeatedly to make sure they have sent the information to the subjects.

RISK/BENEFIT ANALYSIS OF RESEARCH

Finally, having students engage in ethics committee role play gives them critical experience in making decisions about ethical issues in research. The Activities Handbook for Teaching of Psychology, #73 and #77, provides advice and exercises on this. A group discussion of published studies can also be beneficial. Milgram's obedience study can always be used along with Baumrind's criticisms. Schulz (1976) and Schulz and Hanusa (1978) studied the effects of control and predictability using residents of a nursing home who were visited by student volunteers. The 1978 study is a follow up to determine the effects of the earlier manipulation. These studies are also good for discussing informed consent, deception, and debriefing, in addition to an analysis of the risks vs. benefits of the research.

II. Teaching the Ethics of Animal Research

A substantial number of psychological research studies examine the behavior of nonhuman animals. The use of animals in research raises a considerable number of ethical issues. It is essential that students are accurately informed about the nature and the purpose of psychological research with animals. I will discuss a classroom role-play exercise that I have found to be effective in teaching students about ethical issues in animal research. The exercise highlighted below is a modification of an exercise developed by Herzog (1990). This exercise gets the students actively involved in discussing ethical issues, and I have found the exercise to be more effective than merely lecturing on the topic of ethics.

The Exercise:

During the class preceding the role-play exercise I provide the students with a copy of the American Psychological Associations Guidelines for the Care and Use of Animals. During this class session we review the guidelines and discuss the ethical boundaries that exist when conducting research with animals. It is essential that students are aware that guidelines presently exist to ensure that the animals utilized in research are protected against unnecessary discomfort.

During the next class session the class is divided into groups of 5-6 students, with each group acting as an Ethics Review Committee. Each student is given a copy of a research proposal application form which contains information about a proposed research project. Contained in this application is a description of the proposed

research; that is, a statement of purpose, a description of the methodology, an estimate of the risks and benefits of the proposed research, and a statement of the researchers experience with the research topic. The research topics can be modified to suit the needs of a particular course. The group is to decide whether or not the research proposal should be approved or rejected by the committee. Each group must list the costs and benefits of conducting the study as well as prepare a list detailing the implications of not conducting the research project. A consensus must be reached within each group regarding the proposal. Each group then presents its decision to the class along with a brief description of the process and discussion the group engaged in during the decision-making process.

This role-play assignment works very well at getting students involved in the ethics of doing research with animals. A secondary benefit of the exercise is the ability to link the research proposal topic to a fundamental issue or question in psychology. For example, I distributed a proposal to my students in a conditioning and learning course which discussed an experiment on taste aversion in rats. The premise of this proposal was that rats exhibit bait-shyness and tend to avoid poisonous foods. The researcher's were interested in examining how rats learn to avoid such foods. They proposed feeding rats food with a specific taste, and then injecting lithium chloride to induce nausea in the animals. The researchers proposed to then examine avoidance behavior for that specific food in the rat. Half of the groups received a proposal without a statement of a specific practical benefit, whereas the remaining groups received a modified proposal which included a discussion of the link between

conditioned taste aversions in rats and aversion learning, which seems to be a component of the etiology and maintenance of anorexia in humans. The groups that were exposed to the statement of explicit human benefit were more likely to have fewer problems with and doubts about the proposed study. This finding allowed for a discussion of the distinction between basic and applied research. The notion of human benefit from research with animals as well as animal research in its own right can be easily incorporated into this exercise.

Additional issues can be addressed within this framework. The use of animals to provide insights into complex mechanisms in humans (i.e., animal models) can also be discussed. This can be related to the notion of comparative simplicity, which states that there is some degree of commonality between species. The question of generalization across species for behavioral processes can also be addressed, as well as questions pertaining to evolution of the body and mind. Any number of other issues and topics can be considered. The resulting exercise both involves students in an active consideration of ethical issues involved in animal research as well as necessitates their articulating what their personal beliefs are, creating further material for discussion.

III. Ethical Issues In Teaching About Applied Health and Social Research

The purpose of this section of the paper is to briefly introduce topics pertaining to ethical issues in applied health and social research. Five topics will be touched upon: Informed consent, deception, debriefing, the relationship between participant and researcher, and dissemination of results. While they by no means comprise an exhaustive list of ethical issues, these topics can serve as organizing questions for students to consider as they study applied research.

Informed consent in applied settings. Under what amount of "pain and suffering" is research participation justifiable? Psychological or physical distress is often present in applied research settings, so guidelines may be needed to determine if a given patient should participate in a study. A related issue concerns consent more directly: Who agrees to a patient's participation? The patient, the patient's family or guardian, or the attending physician? Finally, the mechanics of actual data collection become a concern, particularly when some thought must be given to whether study participants will be approached before or after a medical procedure. As applied research designs become more longitudinal in nature, a reassessment of a patient's willingness to participate

may also be important.

Deception. When deception is used in traditional social psychological research, ethical questions are often balanced against the desire for valid results. However, it might be persuasively argued that deceiving a healthy college sophomore is somewhat different than deceiving a terminally ill patient. Standards for the use of deception are needed, or alternatives should be identified.

Some deception-like strategies are common place in medical research. Does the use of placebo groups, for example, constitute a form of deception? Students often question whether random assignment is a "fair" way to determine who receives an experimental drug versus an inert substance.

Recent research in social and health psychology also poses a particularly controversial question: What if some forms of deception prove to be beneficial to participants' health and well-being? If a therapeutic intervention is shown to foster positive illusions, for example, is it ethical to avoid debriefing those subjects who benefit from it?

Debriefing. How will debriefing following participation be conducted? Will it be done person to person or through written contact (e.g., the mail)? Traditional laboratory research allows for some form of immediate debriefing, usually after the dependent

measures have been administered. Health research interventions, however, may require considerable time for effects to manifest themselves. As a result, debriefing may have to be postponed for some time. Patients may also return home or go to another facility, making the desirable face-to-face contact for adequate debriefing difficult to achieve.

Additionally, students should be informed that debriefing is an educational as well as compassionate act. Research participants should be reminded of their valuable assistance and the help it may provide to others.

Relationship between participant and researcher. Should researchers discuss specific participant cases with medical staff? Consider medical non-compliance. Suppose a participant reveals a failure to follow medical instructions, a reluctance to take prescribed medication, a desire to discontinue exercise, or a decision not to report symptoms -- should the researcher remain silent?

Non-intentional coercion is also an important concern, particularly when working with geriatric populations. Researchers need to assure potential participants that their refusal to participate in a project will not deny them medical care or staff attention. Given that many persons often view health-care providers as "larger than life", the danger of

inadvertent coercion should not be overlooked.

How can researchers reasonably ensure confidentiality of participants' data? The issue of privacy is increasingly a problem as research teams grow in size and become interdisciplinary. Normally private records are apt to be examined and discussed by many persons.

Finally, should researchers do more for participants than just serving as "good listeners?" Perhaps some form of counseling should be provided to participants in exchange for their cooperation with the research.

Dissemination. Research results should be shared with medical staff who work directly with participants. Describing the results to the people who helped to collect the data serves an important educational function and is one important way to thank them for their assistance with the project. Many medical staffs who have aided researchers in the past complain about the lack of follow through regarding conclusions. Communication not only breeds cooperation, it also satisfies what should be an ethical imperative.

Research results should also be published in journals where they will be read by interested audiences (e.g., medical) beyond the psychological community. Data should not be left to languish unread in psychology's professional journals; they need to

appear in specialized journals to gain the attention of professionals equipped to use the information. One obvious strategy is to submit appropriate facets of a project simultaneously to psychological as well as more specialized periodicals (Adler, Taylor, & Wortman, 1987).

Conclusions. As applied/health research continues to proliferate, more careful attention needs to be paid to the ethical issues arising from it. The five topics presented in this section are useful in getting students to think more critically about the ethical implications of research conducted outside the confines of traditional laboratory settings.

TEACHING ETHICS
IV
RESEARCH ETHICS

The Problem of Fraudulent Research

One aspect of teaching students about research ethics is to show them the influence of changing or fabricating data on the development of science. There is an unfortunately large number of examples that can be presented. You can start back with names that students might be familiar with, such as: Kammerer, Lysenko, Mendel, and Sir Cyril Burt. It is important to point out not only what these people did, but how their actions influenced scientific theory and society. There is a very good Nova videotape about the more recent problems at Harvard and Sloan-Kettering and the Chronical of Higher Education has been publishing the results of the investigations of the Department of Health and Human Services' Office of Scientific Integrity (see the July 3, 1991 issue, page A7). These examples can be related back to the issue of unreproducible data. Science should be self-correcting as other researchers try to replicate published results. However, scientists may waste a great deal of time and effort trying to replicate faked data.

David Martin's book Doing Psychology Experiments provides an excellent chapter on the many ways in which a scientist may "cheat". The following is a brief review of the issues covered in his chapter entitled "Cheating Science". Martin starts with what he calls "blatant" cheating. Blatant cheating includes changing or faking data as was shown in the previous examples and lying about credentials. Fraudulent credentials can include not only false or inappropriate degrees and licenses, but also "padded" vitas. Does someone really go and look up all the 65 articles a person may claim to have written?

Blatant cheating is rather extreme and students are more likely to be able to find examples of or find themselves falling into "moderate" cheating.* Moderate cheating includes unsuitable experimental designs, such as those that do not take into account experimenter demand characteristics or counterbalance for learning and fatigue.

* Every year I do an informal survey in my class. To my dismay almost all of my students admit to having faked data in their chemistry lab. Even worse, they see nothing unethical about doing this. Their explanation is that the correct answer is known and if you do not write down the correct answer you get points taken off. Therefore, they write down the "correct" answer even if it does not correspond to their laboratory results.

Moderate cheating also includes data collection techniques that may encourage rounding and number transfer errors. There are many ways to "cheat" with statistics. The importance of fulfilling the assumptions of the statistical tests needs to be made very clear to students. Students also tend to want to do inappropriate statistical tests, such as multiple t-tests rather than an analysis of variance. This is a good place to show students how graphs can be used to influence the appearance of the results. Regardless of the statistical results, the labeling of a graph can make a difference between means look either huge or nonexistent. One problem that fits into the category of moderate cheating and seems difficult for students to get a good understanding of is subject elimination techniques. There are some fairly clear published techniques, however, when actually doing experiments students often come up with cases that seem very questionable. For example, in a memory experiment where only 20% of the recognition stimuli were previously viewed and you get a subject who says no to all the stimuli. Is this subject just not trying or do they truly not remember even one of the stimuli?

Finally Martin talks about what he calls "common" or accepted cheating. This type of "cheating" does not cover unethical practices, but rather deals with the fact that in every day life even science does not necessarily go along the nice, neat, orderly fashion that we may have led the students to believe. For example, a scientist may reformulate a theory or hypothesis after an experiment is run. In writing up a journal article it is expected that you will leave out the experiments that did not work or were not well designed. In addition, you may reorganize the experiments when you write them up for publication. The experiments are presented to the reader in a logical order, even if that is not how it occurred to you to do them in the lab. The issues covered as "common" cheating are good for giving the students a sense of scientists as real people who do not always have things go perfectly. It gives students an idea of the gap between what they read in published articles and what really happens in the lab. For each of the issues it is important to have concrete examples. I tell my students about the 21 experiments I ran for my Master's Thesis; seven of which appeared in the thesis and only four ended up published.

After talking about a scientist's ethical responsibility to science, you can then move to a discussion of a scientist's ethical responsibility to society. This is the issue of how far a scientist's responsibility extends. Are scientists responsible for the way society uses their findings? You can talk about how many of the scientists who worked on the Manhattan project (developing the first atomic bomb) felt terrible personal guilt about the bomb. Most students are aware of the issues concerning

genetic engineering, but may be unaware of the government regulations limiting the research. To make the issue more relevant to their own situations one can talk about what would happen if the psychology research evidence showed that men (whites, blacks, asians) really were intellectually superior. Students can easily discuss the social implications and usually a heated argument develops over whether the discovers of the "facts" have any responsibility concerning the social repercussions of their findings.

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STUDENT BRAINSTORMING:

UNDERGRADUATE TEACHING - PERSONAL DIMENSION

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STUDENT BRAINSTORMING:
Undergraduate Teaching-Personal Dimension

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Alex Osborn (1957) is credited with introducing brainstorming as a creative problem-solving technique for use in small groups, i.e., from five to ten persons. The basic ground rules for brainstorming are (1) withhold criticism of ideas (2) try to generate as many ideas as possible, and (3) encourage the expression of wild or unusual ideas.

Purpose

College Students

The purpose of this investigation was to use brainstorming as a technique to obtain college students' ideas of how to improve college teaching.

Method

The participants were students enrolled in a course on human development and learning taught by the author as part of the teacher education program at the University of Maryland-College Park. The students, most of whom were preparing to be secondary school teachers in a variety of disciplines, were in their early twenties, juniors and seniors, along with several recent graduates seeking teacher certification. The course was concerned with the application of educational psychology to classroom teaching.

There were 52 students (29 from a 1990 summer class, and 23 from the following fall semester); 37 females, 15 males.

Procedures.

Toward the end of the course in each of the two semesters, students were randomly assigned to groups of four or five (there were six groups in the summer, five groups in the fall). Students were told that their instructor was to attend a meeting on college teaching, and that he would like to have their ideas on the subject generated from a brainstorming session.

While material on brainstorming had been part of their assignment reading and had been discussed briefly in class, the students had not previously participated in such an exercise in this class.

The instructor reviewed the components of brainstorming as mentioned in the introduction. The students were instructed to brainstorm for 15 minutes to get as many ideas as possible about improving college teaching. One student in each group acted as recorder. The instructor remained at the front of the classroom during the brainstorming sessions.

The students appeared to be actively involved in the exercise. At the end of the 15 minutes the papers were collected and there was brief discussion, but no attempt was made to clarify or explain the ideas.

Results.

A total of 121 ideas were generated from the 11 groups (66 ideas from the summer, 55 from fall). The number of ideas from the groups ranged from a high of 19 to a low of 7; the median number

of ideas was 11.

There was some duplication of ideas, i.e., 36 of the ideas were mentioned more than once by the various groups. Allowing for duplication, there were 85 different ideas presented for improving college teaching. The ideas, classified by category, are found on Tables 1 through 5, where it will be noted that the ideas are reported in phrases as taken from the notes of the recorder in each group.

Idea Categories.

The author categorized the 85 ideas into six areas: (1) teacher-student relationships; (2) teacher focus; (3) institutional structure; (4) lectures; (5) other methods/things to do, and (6) exams/evaluation.

Descriptions of the categories and examples of ideas assigned to each are as follows:

(1) Teacher-Student Relationships. These 15 ideas were concerned with the students' perceptions of relationships with teachers, and of teachers as approachable and accessible people. The students thought that college teaching could be improved by ideas such as: don't be an elitist; don't ridicule students; more teacher-student interactions; and, teachers should get to know their students. Table 1 indicates ideas in this category, and their frequency.

(2) Teacher Focus. There were 10 statements culled from the recorded ideas that appeared to be general suggestions for

improvement which were focused on the act of teaching. These were ideas that seem more concerned with a broad orientation toward teaching, rather than on specific details of teaching. Examples are, as taken from Table 2, teachers should: learn teaching methods, give more attention to teaching, and, be more practical and less theoretical.

(3) Institutional Factors. The 12 ideas in this category concerned issues that students thought would be conducive to better teaching, but consisted of matters that are institutional, i.e., administrative or organizational in nature, and, thus, generally less likely to be under the control of professors. Sharing the top of this list, appearing in Table 3, is the pleas for smaller classes and the teaching vs. research issue; also, for example, there is the suggestion that there be recourse against poor teachers; and, to give teachers more money, and to put less emphasis on TA teaching.

(4) Lectures. Since the lecture is perhaps the most common teaching technique of college professors, it is not surprising that a category emerged which was devoted to that area. Examples of some of the 16 ideas related to the lecture method, as shown in Table 4, are: invite guest speakers with opposing views; don't talk to the board; and, one idea stressed that the lecture is the "best way to convey some information."

(5) Other Methods/Things to Do. This category contained a variety of ideas, a potpourri of approaches to teaching and

miscellaneous "things-to-do" in the classroom. It was not surprising, therefore, that the greatest frequency of ideas, 19, was found in this category. The list in Table 5 includes such suggestions as more class discussions, better books, a good syllabus, hands-on-projects, and one student suggested that there be "contact with dead psychologists to discuss their theories with them."

(6) Exams/Evaluation. The 13 ideas found in Table 6 were directed toward the means and process by which students are evaluated. There was a proposal that there be different types of tests and, another, that application of knowledge be evaluated in ways other than tests. There was also the plea for passable exams, and student access to previous tests. One idea asked: "Is memorization of facts essential?"

Discussion

The results of these brainstorming exercises suggest the effectiveness of this technique in generating ideas for problem solving. It was found that in the relatively brief time of 15 minutes, a total of 121 ideas were expressed by 52 students. After allowing for duplication, there were 85 different ideas. The diversity of ideas and their potential for implementation in college teaching provide support for this activity.

One might note that the average of 2.3 ideas per student is not impressive if viewed as a per-student-productivity figure. It should be pointed out that this average is deceptive in that it

represents group productivity where, in a given group, a specific idea is counted only once even though it might have been expressed by several group members.

Classroom Application.

Brainstorming would seem to be a useful procedure for addressing many problems or situations in the classroom. Ideas could be generated, for example, on such classroom matters as:

(a) different forms of class evaluation,

(b) ways of presenting class material, either for the teacher, or for individual students or groups,

(c) field trips or outside observations.

(d) research topics,

(e) cooperative learning experiences, and

(f) teacher-student relationships.

Not only is brainstorming seen as a productive method for generating solutions to problems, but it also has potential as an effective classroom technique for other reasons. For example, as a means of enhancing group cohesion or comradery. It would seem also that brainstorming would be a good change-of-pace technique which involves direct student involvement in the classroom. It might be helpful, for example, to combine role-playing with brainstorming wherein students would respond to problems or issues as if they were of the opposite gender, of a different racial or ethnic group, of a certain occupational group, or as if they were living in a different country or in a different time period.

Limitations.

Since it was the author's intention to obtain ideas from students on ways to improve college teaching, it is felt that this purpose was accomplished given the lengthy list of suggestions that resulted from the exercise.

However, it should be remembered that the students were in teacher education and, consequently, might have been more perceptive of the teaching process, especially since the exercise was conducted in an educational psychology class which was focused on classroom learning.

The fact that over 70% of the sample was female (37 female, 15 male) may have had some impact on the results. No attempt was made to differentiate by gender either in the formation of groups or in expression of ideas.

It may have been helpful to give students an opportunity to clarify and/or expound on some of their ideas. This would help in reducing ambiguity and in providing greater detail about an idea for possible implementation.

Finally, forming categories and classifying qualitative data is often an onerous and uncertain process. In this investigation the design would have been strengthened by obtaining interjudge reliability for assignment of ideas to categories

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Table 1

Student Brainstorming Ideas Relating to

TEACHER-STUDENT RELATIONSHIPS

Be available and accessible (office hours, telephone) (3)*

Get to know your students (3)

Be more approachable (3)

More respect for students (2)

Don't be an elitist/above your students (2)

No "weed-out" attitude (2)

Remember that students have other classes, give reasonable assignments (2)

Better advising; inform about student services (2)

Don't ridicule students

Be more personable

More teacher-student interaction

Personal feedback to students

Incentives to meet prof outside of class

Be patient and helpful

Mandatory conferences

Attention to student interests

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*Number refers to idea frequency.

Table 2

Student Brainstorming Ideas Relating to

TEACHER FOCUS

Be more practical, less theoretical (3)

Give more attention to teaching (2)

Show more enthusiasm/dynamic style; interest in subject (2)

Work on communication skills, vocabulary; speak English

Set more goals to accomplish each day

More knowledgeable

Really look at student evaluations of teaching

Prof should learn teaching methods

Encourage students to form own opinions

Arouse student curiosity